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(54) Title: COMPUTER EDUCATION AND EXECUTION INTERFACE OPERABLE OVER A NETWORK

(57) Abstract

A computerized, multimedia education and execution interface system (11) and method for educating and entertaining a student user according to a teacher user's options. The system (11) incorporates the education techniques of video segments (18, 20, 28), on-line student and/or teacher activity, written instructions, student's activity monitoring, student rewarding and education and entertainment program content filtering. The environment uses various input devices including a mouse (22, 24) and a keyboard (30, 32). Compact disk drive (20) with main memory (18) and disk drive (16) store the various programs and education data. An audio interface (24) and video controller (28) and screen (26) with a central processing unit (12) communication over a bus (14) completes the system (11).

COMPUTER EDUCATION AND EXECUTION INTERFACE
OPERABLE OVER A NETWORK

Technical Field

The present invention relates to an execution system for performing educational or entertainment operations and for providing a generic interactive educational environment capable of monitoring and rewarding the learning activities of a student, the system being

5   configurable to the preferences of educators, teachers, parents or policy makers.

Background of the Invention

For many years, application programs, on-line services, and other computer application software have been available for use with computers. Such application programs

10   perform word processing functions, numeric functions, database functions, accounting functions, inventory control functions, and a wide variety of other functions. These programs served not only to increase the efficiency of their user but to increase the user's accuracy as well. On-line services allowed a user to access large databases of information that could be downloaded and used as desired.

15   For many years, educational and entertainment application programs have been available for use with personal computers. Educational and entertainment programs served to teach some particular skills to its user in a wide range of domains, like psycho-motricity, to four-year-old children or continued education for senior-citizens.

But educational and entertainment programs generally limited to teach only one or

20   a small group of related skills, and constitute self-contained, non-modifiable software entities. Although such limited programs can be efficient in some cases where a well-defined, isolated skill is to be learned, educators such as parents, ministers or teachers are unable to provide any form of specific input to the educational and entertainment programs.

Examples of specific input sought to be incorporated typically are family, civic, social, ethnic or religious input elements.

Current educational and entertainment programs do have some general form of built-in logic to enable teachers to provide guidelines and corrections for errors. But such schemes

5   prevent true interactivity between a student and teacher, because the teacher is excluded by program and cannot be interactively involved, locally or remotely, in the student's progress with the educational or entertainment program. For example, the teacher could provide feedback by rewarding the student with an animated congralution upon acheiving a goal, such as a class mascot, or with a certificate printed out on an attached printer. But such

10   interactive feedback is not avaialble with present educational or execution programs.

While the software industry evolved, the shortcomings of static education and entertainment programs, and services were recognized and on-line classes arose in response. But on-line classes targeted more of an academic-type of education. Also, because of the narrow focus of such services, a common knowledge base between the students had to be

15   established. Such limitatoins prevented custom tailoring of the contents of the courses or the education programs to other demographic groups defined by civic, social, ethnic or religious considerations, which appears more important by the public for matters such as the development of personal identity and moral values.

Also missing is the ability for educational and entertainment systems to demonstrate

20   themselves or to tutor the student or the teacher on the systems use as a whole or with some of its functions and features.

An example of a visual teaching aid, sold under the tradename LOTUS SCREENCAM, displays images on a computer screen that are identical to those displayed within an application program. However, even though the teaching aid displays images that

25   a user would encounter during use of the program, the teaching aid merely functions like a

video player. The teaching aid merely displays to the user a proper sequence of keystrokes and/or mouse movements that would be required to execute specific functions and does not provide interaction between the user and the actual application program.

Even when a user becomes proficient in the use of an application program, the user

5   must provide all content to documents produced by the application program. Thus, the training performed and expertise gained typically has no relationship to particular job tasks to be performed. Some application programs included wizard applications that aided the user in performing certain tasks within the application programs.

Thus, there lies a need for a multipurpose education and entertainment interface that

10   would allow complete interactivity, locally or remotely, in real-time or not, between a student, child, pupil and a teacher, parent, minister or educator, based on expandable educational and entertainment programs and resources.

Summary Of The Invention

15   The invention described herein overcomes the above-described limitations of the prior tutorials, application program interfaces and execution systems. Provided is a computer-implemented tutorial system configurable by a teacher and for teaching a student. The system has a resource thesaurus in communication with a student user interface component and a teacher interface component. The resource thesaurus has a plurality of

20   goal-oriented programs configurable by a student or a teacher.

The student user interface component is for transmitting and receiving a set of instructions from and to the student. The instructions are based upon at least one goal-oriented program of the plurality of goal-oriented programs, the selected instructions designating at least one goal-oriented program from the plurality of goal-oriented programs.

The teacher interface interfaces with the resource thesaurus, the teacher interface for transmitting instructions to the teacher and for receiving instructions from the teacher based upon a teacher selection of a goal-oriented program from the plurality of goal-oriented programs. The received instructions from the teacher ar e for modifying the contents of the

5   teacher selected goal-oriented program in the resource thesaurus.

In a further aspect, a tutorial agent transforms a student or a teacher instruction into actions on the student user interface or the teacher user interface to execute and demonstrate the use of the functions in the system.

Other aspects of the present invention will become apparent with further reference

10   to the drawings and specification which follow.

Brief Description Of The Drawing

FIG. 1 is a block diagram illustrating a computer system that may be utilized in conjunction with the present invention;

15   FIG. 2 is a functional block diagram illustrating the functional relationship between elements of an embodiment of a system embodying the principles of the present invention;

FIG. 3 illustrates a sample display screen of an interface of a system or the present invention performing tutorial functions detailing a tutorial topic for a paint-type application program;

20   FIGs. 4a and 4b illustrate executions accomplished by the system of FIGs. 2 and 3 relating to particular selections made by a user of available functions; and

FIG. 5 is a functional diagram showing the components of the system of a further embodiment utilizing the present invention.

Detailed Description of a Preferred Embodiment

In the following description, certain details are set forth to provide a complete understanding of the present invention. It will be apparent to one skilled in the art, however, that these specific details are not required in order to practice the present invention. Also,

5   well known electrical structures and circuits are depicted in block diagram form so as not to obscure the present invention unnecessarily.

The descriptions which follow are presented in part in terms of operations within a computer. These descriptions and representations are the means used by those skilled in the software arts to most effectively convey the substance of their work to others skilled in the

10   art.

An algorithm is here, and, generally, conceived to be a self-consistent sequence of steps leading to a desired result. These steps are those requiring physical manipulations of physical quantities. Usually, though not necessarily, these quantities take the form of electrical or magnetic signals capable of being stored, transferred, combined, compared, and

15   otherwise manipulated. It proves convenient at times, principally for reasons of common usage, to refer to these signals as, values, symbols, characters, display data, terms, numbers, or the like. It should be borne in mind, however, that all of these and similar terms are to be associated with the appropriate physical quantities and are merely used here as convenient labels applied to these quantities.

20   Further, the manipulations performed are often referred to in terms, such as comparing, commonly associated with mental operations performed by a human operator. No such capability of a human operator is necessary, or desirable in most cases, in any of the operations described herein which form part of the present invention, since the operations are machine operations. Useful machines for performing the operations of the present

25   invention include general purpose digital computers or other similar devices. The present

invention relates to method steps and apparatus for operating a computer in processing electrical or other physical signals to generate other desired physical signals.

The present invention also relates to a system for performing these operations. This system may be specifically constructed for the required purposes, or it may comprise a

5   general purpose computer as selectively activated or reconfigured by a computer program stored in the computer. The algorithms presented herein are not inherently related to any particular computer or other apparatus. In particular, various general purpose machines may be used with programs written in accordance with the teachings herein, or it may prove more convenient to construct more specialized apparatus to perform the required method steps.

10   The required structure for a variety of these machines will appear from the description below.

In the following description, several terms are used frequently, have specialized meanings in the present context, and are thus defined. The terms "environment," "windowing environment," and "running in windows" are used interchangeably to denote

15   a computer user interface in which information is manipulated and displayed within bounded regions on a raster scanned video display.

The terms "application," "computer application software," and "program" are used interchangeably herein to refer to any computer program run in conjunction with the present inventive system. Such computer programs could relate to computer applications, with on-

20   line services, communication systems, or any other computer oriented function.

The term "current" is sometimes used herein as an antecedent to "window," "application," etc., and is used to denote system components which are currently being utilized or performing operations with respect to a particular computer application software running in the environment.

A system 10 embodying the principles of the present invention is shown by way of illustration in FIGS. 1-4. The system 10 of the present invention is implemented on a typical computer system 11 as shown in FIG. 1. This computer system 11 typically comprises a CPU 12, a computer bus 14, a disc drive 16, main memory 18, a compact disc drive 20, and

5   user interface components. These user interface components preferably comprise a mouse 22 and mouse controller 24, a video display 26 and video display controller 28, and a keyboard 30 and keyboard controller 32. Preferably, the computer system 11 also includes an audio interface 34 that transmits audio information to and receives audio information from a user of the system.

10   As one skilled in the art will appreciate, the system and method of the present invention are implemented on the computer system 11 but are not readily identifiable as specific components of the system. Those skilled in the art will readily understand how the described invention may be implemented on any of a variety of computer systems. Therefore, the implementation of the system on a particular hardware platform will not be

15   more fully described herein.

Referring now to FIGS. 2 through 4, a computerized, multimedia tutorial interface system 10 for training a user to use computer application software comprises control display means 40, instruction input means 42, instruction interpretation means 44, audiovisual enablement means 46, computer application software interface means 48, and computer

20   application software control means 50.

Referring specifically to FIGS. 2 and 3, the control display means 40 comprises a control bar 51 and a topic selection screen 53, each of which are selectively displayed on the computer screen 26. Together, the control bar 51 and the topic selection screen 53 provide a plurality of instructions to a user that may be selected by the user. As is shown, the

25   control bar 51 preferably has commands similar to those found on a video tape player,

including exit, rewind, goto, fast forward, stop, back, pause, and play. The topic selection

screen 53 allows a user to access video segments relating to specific topics to be learned or

specific operations to be executed. Typically, the user accesses specific video segments on

a topic-by-topic basis as desired. In the preferred embodiment, the topic selection screen

5   53 is displayed only when certain commands are executed via the control bar 51. However,

depending upon the application, the topic selection screen 53 could also be continuously

displayed.

The instruction input means 42 operates to receive an instruction from a user 49.

Preferably, the instruction input means 42 combines hardware and software components.

10   In the preferred embodiment of the present invention, the instruction input means 42

comprises the combination of the mouse 22, the keyboard 30, the control bar 51, the topic

selection screen 53, and related software that allows the user 49 to select a desired function.

Selecting a command from a menu displayed on a computer screen 26 using a mouse 22 and

via a keyboard 30 are both well known in the art and are not fully described herein. As one

15   skilled in the art will readily appreciate, however, the instruction input means 42 could also

include the combination of the audio interface 34 in conjunction with voice recognition

software.

The instruction interpretation means 44 interprets the user instruction, creates at least

one execution instruction, and selectively issues the execution instruction. The instruction

20   interpretation means 44 preferably comprises a series of software instructions executed on

the computer system 11 in a fashion well known in the art. For example, when the user

selects an instruction via the instruction input means 42, software code monitors the mouse

controller 24 and keyboard controller 32 interfaces, receives input from the interfaces,

processes the input to determine what function has been executed, and issues the proper

25   execution instruction to the respective system component.

Still referring to FIGS. 2 and 3, the audiovisual enablement means 46 operates to receive execution instructions from the instruction input means 44, to selectively retrieve audiovisual information responsive to the execution instruction, and to display the audiovisual information on the computer screen 26. Preferably, the audiovisual information

5   comprises a video clip that is retrieved from a compact disc via the CD drive 20 or the data link. The video clip is then decoded, formatted, and displayed on the computer screen 26 in a video window 55. The video window 55 may cover only a portion of the computer screen 26 or may be expanded to be as large as the screen. Preferably, as is shown in FIG. 3, the video window 55, the control bar 51, and the topic selection screen 53 all reside on

10   top of the computer application software window 57 when they are active. However, when they are inactive, they are all hidden. Further, in the preferred embodiment, the topic selection screen 53 is displayed only when certain user instructions are executed.

In a typical use of the tutorial interface system, the user 49 selects a specific video clip that corresponds to a particular topic and topic to be learned. The video clip is then

15   retrieved and displayed on the computer screen 26 in the video window 55. After the information has been displayed, and, if the process has not been aborted or otherwise interrupted by the user, control may be returned to the user or be given to another system 10 component. In the preferred embodiment, immediately after the video clip has been displayed, or during a user 49 initiated break in the video clip, control is taken again by the

20   computer application software interface means 48. However, the system 10 may also be operated such that the computer application software interface means 48 takes control during a video clip, halts the video clip to demonstrate a function or service feature, and then later restarts the video clip.

The computer application software interface means 48 also receives execution

25   instructions from the instruction interpretation means 44. The computer application

software interface means 48 interfaces directly with computer application software and selectively executes a function of the computer application software that is described in a video clip. Thus, the functions performed by the computer application software interface means 48 within the computer application software provides a second visual training tool

5   to the user 49 on the computer display 26. Preferably, the function or set of functions executed within the computer application software relate directly to the audiovisual segment that was just displayed to the user 49. Preferably, the computer application software interface means 48 comprises a communication agent that is loaded into main memory at system 10 startup. The communication agent accesses instruction sets specific to the

10   computer application software of interest that are stored in separate files on the disc drive 16. Thus, to perform a specific set of instructions within the computer application software, the communication agent brings the computer application software up on the computer display 26, accesses the instructions, and then executes the instructions within the computer application program.

15   The computer application software control means 50 selectively relinquishes control of the computer application software to the user 49 so that the user may practice operating the computer application software. The computer application software control means 50 also selectively regains control of the computer application software from the user 59. In this fashion, the user may practice those techniques that were previously described to him

20   via the video clip and also were performed by the computer application software interface means 48. As one skilled in the art will readily appreciate, the computer application software control means 50 is preferably implemented as a combination of software instructions.

        Preferably, the system 10 of the present invention also comprises user instruction

25   monitoring means 52, error message issuance means 54, and evaluation means 56, all of

which provide feedback to the user when the user has control of the computer application software. Specifically, the instruction monitoring means 52 monitors the user instructions issued to the computer application software, keeping track of the instructions. When activated, the error message issuance means 54 issues an error message to the user on the

5   computer screen 26 if the user issues instructions that are erroneous. To determine whether the issued instructions are erroneous, the error message issuance means 54 compares the user's issued instructions to a list of correct instructions. Further, when activated, the evaluation means 56 evaluates the instructions issued to the computer application software by the user and issues a summary of the user's performance in issuing the instructions.

10   Thereby, the evaluation means 56 provides an indication of the user's performance in learning to use the computer application software. As one skilled in the art will readily appreciate, the user instruction monitoring means 52, error message issuance means 54, and evaluation means 56 are all preferably implemented as a combination of software instructions and executed accordingly.

15   Referring specifically to FIG. 4, the operation of the tutorial interface system 10 is described. In the description of the system 10 operation, each relevant system event is identified with a numeral in parentheses. Immediately after the system 10 is started (100), the interface with the computer application software is initiated, and the control bar 51 and video window 55 are created (102). Next, the interface between the main program and the

20   communication agent is established (104), and the communication agent is loaded into main memory 18. At this point, the product logo is displayed, and an introduction video segment may be played (108) on the computer screen 26. The system 10 then prompts the user to enter an instruction from the control bar 51. Immediately upon entering the program, a topic index is set to a predetermined value and a topic index is also set to a predetermined

25   value. When the program is run for the first time, these two indexes are set at one.

However, when the user 49 continues with a previously-started topic, the indexes may be automatically set to those of the prior session.

Each instruction available on the control bar 51 may be executed by the user 49. The EXIT instruction (110) provides notification of an exit to the communication agent via the communication agent (112), stops the communication agent (114), and closes all communication agent command files (116). The EXIT instruction (110) optionally further shuts down the core program (118), closes the control bar 51 window, the video window 55 (120), and ends the current execution or training session (122).

Executing the REWIND (RWD) instruction (124) with a double click causes the current topic index and the current topic index, as displayed in the topic selection screen window 53, to index to the first topic and first topic (126). Executing the REWIND (RWD) instruction with a single click causes the current topic index to decrement by a single topic (126).

Executing the GOTO instruction (128) opens the topic selection screen 53 and allows the user to select a particular topic to be indexed (130). Then the user 49 has the option of playing the video clip or the demonstration of the particular topic. Depending upon the option selected, the video clip plays or the execution plays (130).

Executing the FAST FORWARD (FF) instruction (132) with a double click causes the current topic index and the current topic index, as displayed in the topic selection screen window 53, to index to the last topic (134). Executing the FAST FORWARD (FF) instruction (132) with a single click causes the current topic index to increment by a single topic (134).

Executing the STOP instruction (136) causes the process that is running when the instruction is executed to stop immediately (138). Executing the BACK instruction (140) freezes the current topic indexes and plays the previously-viewed video clip again (142).

The PAUSE instruction (144) causes the currently-playing video clip, if one is playing, to stop for later continuation (146).

The PLAY instruction (148) first causes the topic counter to increment (150). The topic counter indexes the relevant video clip and communication agent instructions. The next video clip is then played in the video window 55 (152). Then, the control bar 51 and the video window 55 are hidden, and the communication agent instructions may be executed (154). A notification of play is transmitted to the communication agent (156), the order is received by the communication agent (158), and instructions are read from the communication agent library and executed within the computer application software (160). Once the instructions are completed, a backwards notification is sent (162) so that the control bar 51 and the video window 55 are again displayed (164). Next, a short, written synopsis of the demonstration that was executed is displayed to the user 49 on the computer screen 26 (168). Then, the computer application software interface means 48 allows the user to practice within the computer application software to enforce what he or she has learned (168). Then, the user's performance is evaluated (170).

The COUNTER INFO instruction (172) toggles the time information displayed between elapsed time from the start of the video clip to the time remaining in the video clip (174). Optionally, the counter could also display the time since the user 49 logged on or the clock time. The counter hide instruction (176) toggles the counter display between being hidden or displayed (178).

The system 10 of the present invention can be easily implemented with application programs, on-line services, or any computer application software. The system 10 is generic and provides a familiar training interface that can be used in many varied situations. As one skilled in the art will readily appreciate, the system 10 of the present invention is readily transportable to provide tutorial instruction in any computer based system.

Description of a Further Embodiment

A further aspect of the present invention relates to an execution system operable to perform generic goal-oriented operations such as educational or entertainment operations, and to provide a generic interactive educational environment capable of monitoring and

5   rewarding the learning activities taking place therein. The system is fully tailorable to an instructor's preferences, being either an educator, teacher or parent. Also, as part of the environment, the present invention has the ability to perform various operations on itself, including self-demonstration of the functions available to the user, regardless of whether components of the system of the present invention are located locally or remotely.

10   The term "student," is understood to be a"learning human being." Also, the term "teacher," is meant to refer to any person whose aim is to educate another, such as a teacher, parent, minister or other such instructor.

The system and method of the present invention are implemented on the computer system 11 (shown in Fig. 1) but are not readily identifiable as specific components of the

15   system. Those skilled in the art will readily understand how the described invention may be implemented on any number of computer systems. Therefore, the implementation of the system on a particular hardware platform is not described herein.

Referring now to FIG. 5, a computerized, multimedia educational system and interface system 10 for teaching a student has an expandable supplied resources thesaurus

20   201, a student's activity center 202, a teacher activity center 203, which is used by the teacher to control the student's activity and to design new or modify existing resources, a resources filter 204, a student's activity monitor 205, a rewards agent 206 and an execution and tutorial agent 207. The dashed lines in FIG. 5 indicate processing that is inherent to a student's activity. The solid lines indicate processing that is inherent to the teacher's

25   activity.

The interaction between the system components, as well as the communication flow thereof, are preferably implemented as follows. The expandable supplied resources thesaurus 201 provide resources to be manipulated by the student within the student's activity center 202 and the teacher's resources design center 203. A teacher can expand or modify existing

5   thesaurus resources to better suit educational or entertainment goals. These modifications can be permanently stored in the resources thesaurus 201. The term "thesaurus" as used herein is meant for a resources data container having a set of default, sample or teacher modified resources "played" by the student's activity center 202. Examples of such resource data is video-clips, audio, images, stories, quizzes, or the like. The resource manipulations

10   are provided for by the goal-oriented program contents and features. These resources are provided in conventional formats that can be manipulated by the system. For example, such formats are AVI ("Audio/Video Interleave") video clips, bit-mapped images, wave sounds, and clipart. These resource can be modified or created from existing resources from the teacher's activity center 203 through application programs or their interfaces.

15   The resources in thesaurus 201 can be called on demand by a student, and are provided to a resources filter 204. The teacher can configure the resources filter 204 to block or to prevent a student's access to resources within the thesaurus 201.

The student's activity center 202 is a default, self-contained set of goal-oriented programs, or interfaces to such programs used in a learning process. For example, the

20   programs or programs interfaces have games, stories, puzzles, quizzes, coloring books or the like. Preferably, students, upon exiting the system, can save their current working/learning environment to a file that can be password protected. It should be noted that goal-oriented programs means those programs having learning thresholds or objectives, such as educational programs or entertainment programs having intermediate or sole

25   learning objectives.

The teacher's activity center 203 is a default set of application programs, or interfaces to such programs, used by the teacher to modify resources in the resources thesaurus 201. The teacher's activity center 203 is private to the teacher, and is password protected. The activity center 203 also allows the teacher to modify resources in the

5   resources thesaurus to control the student's activity through the student's activity control agent 205, and to configure the resources filter 204.

The resources filter 204 also plays a role in the converse direction. That is, the teacher can configure the filter 204 to prevent permanent storage of modified resources in the resources thesaurus 201.

10   In terms of action, the resources thesaurus 201 provides resources to both the student's activity center 202 and the teacher resource design center 203. Resources provided to the student's activity center 202 is conditioned upon the configuration of the resources filter 204. From the teacher's activity center 203, modified resources can be permanently recorded into the resource thesaurus 201. From the student's activity center 202, modified

15   resources can also be permanently recorded into the resources thesaurus 201 provided that the resources filter 204 allows this activity.

A student's activity monitor agent 205 controls the operations or activities performed by the student and is appropriately configured from the teacher's activity center 203 by a teacher to monitor and overlook the student's activity so that activities are journalled and

20   reported to the teacher's activity center 203.

A rewards agent 206 grants rewards provided in the student's activity center 202 to the student upon completion of certain tasks or achievement of certain goals. The rewards agent 206 is used to reinforce the learning process. An example of a reward is a cartoon video clip or special certificate that is printed on an attached printer. The rewards agent 206

25   is configured by the teacher from the teacher's activity center 203 to set the triggers for

providing rewards to the student. When such goals or other triggering events occur, the rewards agent 206 is triggered by the student's-activity monitor agent 205.

The execution and tutorial agent 207 instructs or tutors the student or the teacher on the system's operation. Tutorial instructions are provided by audio/video clips and written text, and by direct, automatic execution of the desired functions on the screen. The tutorial agent 207 can be activated upon demand or upon an error by the student's activity center 207, and operates according to the configuration loaded from the teacher's activity center 203. The tutorial agent 207 is activated upon demand by the teacher .

The tutorial agent 207 can also serve to provide execution functions that can operate or control specific different components of the system described herein. That is, the tutorial agent can be an activity agent to override the teacher or the student user interfaces 207 and 203, respectively. For example, the tutorial agent 207 can be used to input different yet specific religious, social, family or health related information such as history, values, known facts, or the like, targeted to the student user's specific learning curriculum. For a further example, the tutorial agent 207 can be programmed to operate or control the rewards agent 206, student activities monitor 205, or the resources filter 204, independently or in combination.

The visibility of system component's differs between components. The resources filter 204, the student's activity monitor 205 and the rewards agent 206 are normally hidden, except when in a configuration mode or when an error occurs. That is, the resources filter 204, the student's activity monitor 205 and the rewards agent 206 operate in the background of the system's interface. Configuration by the teacher takes place from within the teacher's activity center 203. The remaining components are visibly present in, and directly callable from, the system interface.

Some components of the system and method of the present invention have the option of being located locally or remotely. These components are the expandable resources thesaurus 201, the student's activity center 202 and the teacher's activity center 203. The term "locally" means a physical data storage device such as CD drive 20 or disk drive 16

5   shown in FIG. 1. The term "remotely" means a data link, established either through a local area network ("LAN"), a wide area network ("WAN") or the Internet as set out under conventional network protocols. A suitable network standard is TCP/IP ("Transport Control Protocol / Interface Program").

In view of the above-detailed description of the present invention and associated

10   drawings, other modifications and variations will now become apparent to those skilled in the art. It should also be apparent that such other modifications and variations may be effected without departing from the spirit and scope of the present invention as set forth in the claims which follow.

What we Claim is:

1.   An computer-implemented tutorial system configurable by a teacher and for

teaching a student, the system comprising:

a resource thesaurus having a plurality of executable goal-oriented programs

5   configurable by a student or a teacher;

a student user interface component for transmitting a first set of instructions

to the student and for receiving selected instructions from the student, said selected

instructions based upon at least one goal-oriented program of said plurality of goal-oriented

programs, said selected instructions designating at least one goal-oriented program from said

10   plurality of goal-oriented programs;

a teacher user interface for interfacing with said resource thesaurus, said

teacher user interface transmitting a second set of instructions to the teacher and for

receiving selected instructions from the teacher with respect to a goal-oriented program

from said plurality of goal-oriented programs, said selected instruction for modifying said

15   teacher selected goal-oriented program; and

an execution and tutorial agent for transforming student or teacher instruction

into actions on said student user interface or said teacher user interface for executing or

demonstrating a function of the system.

2. The system of Claim 1, further comprising :

a resource filter component between said resource thesaurus and said student

user interface component, said resources filter configurable by the teacher for selectively

limiting the student's access to said resource thesaurus.

3. The system of Claim 1, further comprising :

a student activity monitor that continuously records a plurality of student user actions into a journal stored in an electronic memory that is accessible by the teacher.

4. The system of Claim 3, further comprising :

a rewards agent that is triggered by student's activity monitor that issues rewards as configured by the teacher to reinforce an educational process.

5. The system of Claim 3, wherein said teacher user interface further comprises:

a resource design interface for allowing the teacher to modify said resources stored in said resources thesaurus.

6. The system of Claim 3, wherein said teacher user interface comprises :

a student activity monitor interface for allowing the teacher to manipulate and to store monitoring data recorded by student's activity monitor.

7. The system of Claim 3 wherein the resources thesaurus comprises:

a plurality of resources data; and

a plurality of goal-oriented programs capable modificatoin by the teacher.

8. The system of Claim 3, wherein said resources thesaurus further comprises :

a network interface for remote access by said student user interface component or by said teacher user interface component.

9. The system of Claim 3, wherein said student user interface component further comprises:

a network interface for remote access to said resources thesaurus.

10. The system of Claim 3, wherein said teacher user interface component further comprises:

network interface to access remote resources thesaurus to retrieve resources.

11.   An computer-implemented tutorial system configurable by a teacher and for teaching a student, the system comprising:

a resource thesaurus having a plurality of executable goal-oriented programs configurable by a student or a teacher;
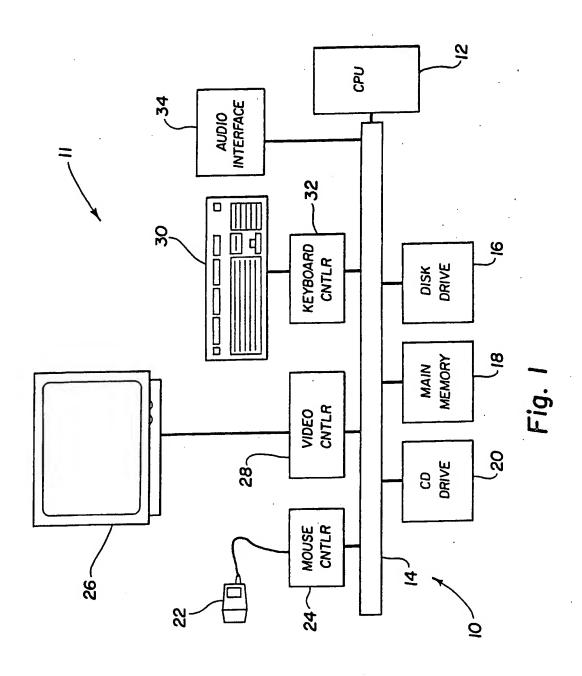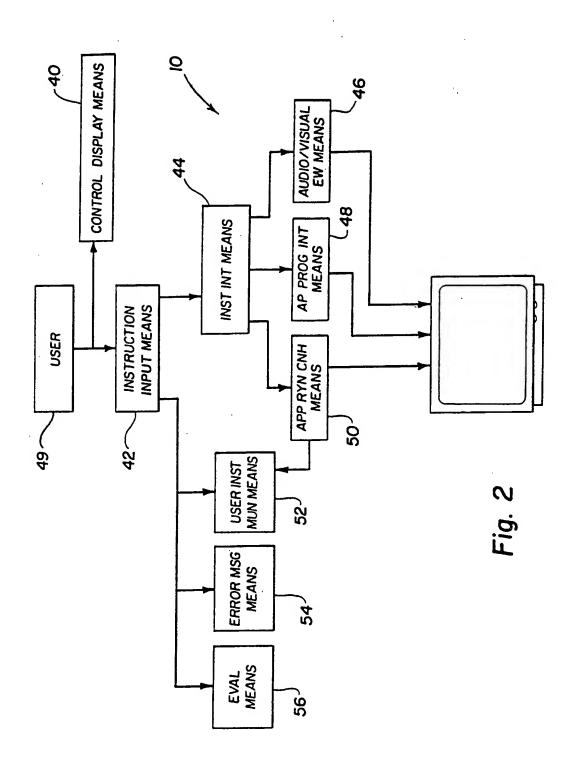
5   a student user interface component for transmitting a first set of instructions to the student and for receiving selected instructions from the student, said selected instructions based upon at least one goal-oriented program of said plurality of goal-oriented programs, said selected instructions designating at least one goal-oriented program from said plurality of goal-oriented programs;

10   a teacher user interface for interfacing with said resource thesaurus, said teacher user interface transmitting a second set of instructions to the teacher and for receiving selected instructions from the teacher with respect to a goal-oriented program from said plurality of goal-oriented programs, said selected instruction for modifying said teacher selected goal-oriented program; and
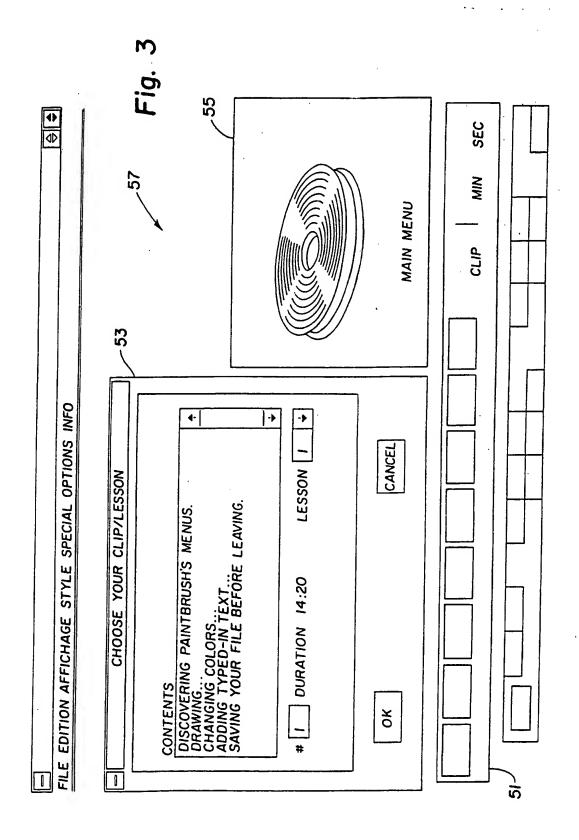
15   an execution and tutorial agent for controlling each of said student user interface, said teacher user interface and said resource thesaurus for executing a function of the system.
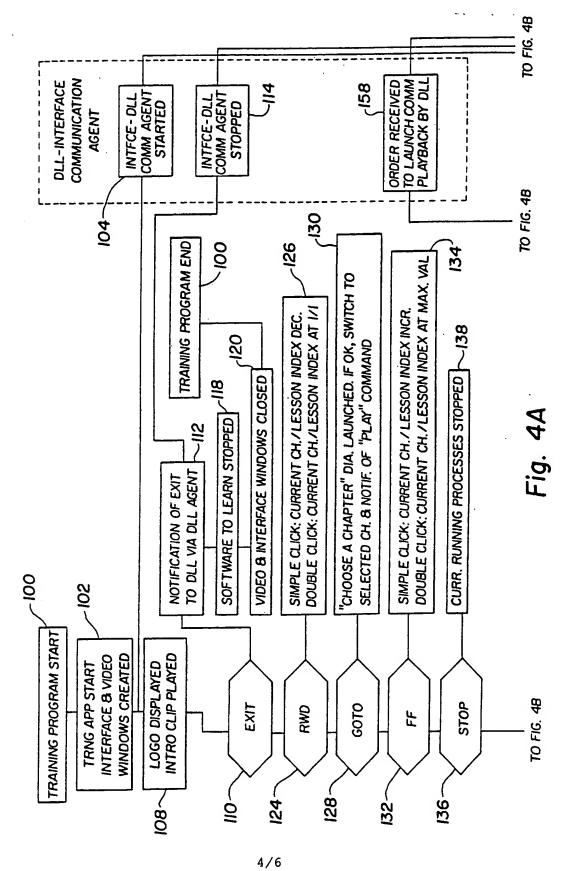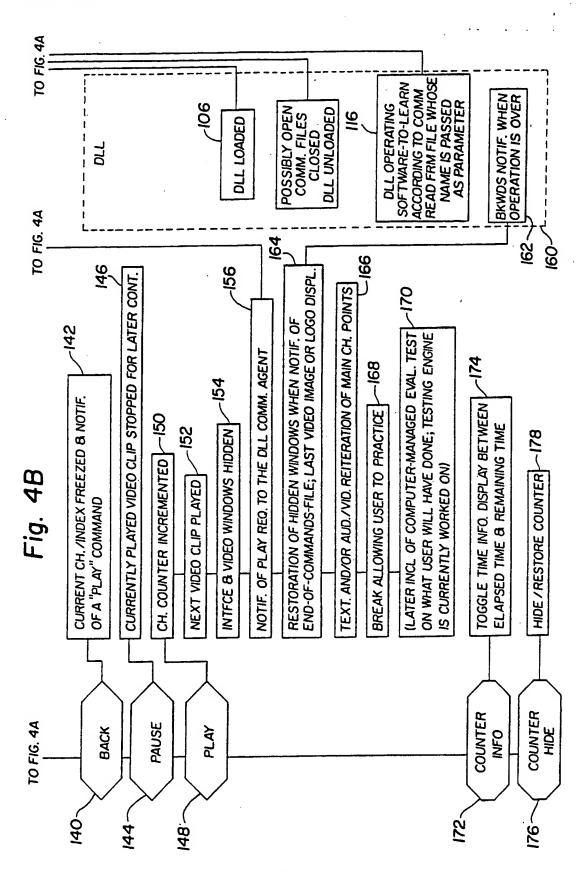
Fig. 1

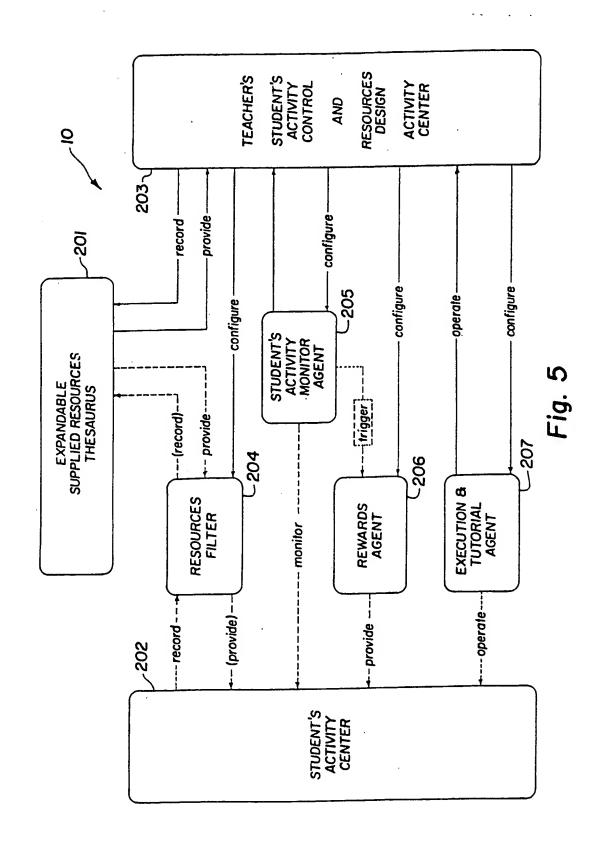SUBSTITUTE SHEET (RULE 26)

Fig. 2

SUBSTITUTE SHEET (RULE 26)

Fig. 3

Fig. 4A

Fig. 4B

Fig. 5

INTERNATIONAL SEARCH REPORT

A.	**CLASSIFICATION OF SUBJECT MATTER**

IPC(6)   : G06F 3/00
US CL :395/336
According to International Patent Classification (IPC) or to both national classification and IPC

B.	**FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

U.S. :   395/336,337,338

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

APS, IEEE ONLINE
search terms: teaching, student, demostration, tutorial, help

C.	**DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US, A, 4,622,013 (CERCHIO ET AL) 11 NOVEMBER 1986, FIG. 1, cols 3-4.	1-11
Y	US, A, 5,310,349 (DANIELS ET AL) 10 MAY 1994, FIGS. 1-2, 4-8.	1-11
Y	US, A, 5,372,507 (GOLEH) 13 DECEMBER 1994, COLS. 7-8.	1
Y	US, A, 5,387,104 (CORDER) 07 FEBRUARY 1995, COLS. 11-13.	1-11
Y	US, A, 5,441,415 (LEE ET AL.) 15 AUGUST 1995, FIGS. 1-2.	1
Y	US, A, 5,442,759 (CHIANG ET AL) 15 AUGUST 1995, FIGS. 1-3.	1-11

[X]	Further documents are listed in the continuation of Box C.	[ ]	See patent family annex.

•	Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be of particular relevance		
"E"	earlier document published on or after the international filing date	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O"	document referring to an oral disclosure, use, exhibition or other means		
"P"	document published prior to the international filing date but later than the priority date claimed	"&"	document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
17 JANUARY 1997	0 5 MAR 1997

Name and mailing address of the ISA/US	Authorized officer
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Form PCT/ISA/210 (second sheet)(July 1992)*

International application No.

PCT/US96/18421

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US, 5,537,618 (BOULTON ET AL) 16 JULY 1996, COLS. 1-2.	1
Y	US, 5,377,319 (KITAHARA ET AL) 27 DECEMBER 1994, FIGS. 16A-17.	1-11
Y	US, 5,395,243 (LUBIN ET AL) 07 MARCH 1995, FIGS. 8-9.	1-11